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Your Ref.: Please refer to our letter of March 27, 2006
Our Ref. : 62119/04R00488/US

**Translation of Informal Comments on the written opinion of
the International Searching Authority**

Informal Comments on International Search Report

(1) In an International Search Report mailed on February 15, 2005 is cited a reference 1 based on which inventions according to claims 1, 4-8, 14, 15, 19, and 20 of the invention allegedly lack novelty and nonobviousness.

A reference 2 is also cited based on which inventions according to claims 1-15 and 17-22 of the invention allegedly lack novelty and nonobviousness.

However, for the following reasons, we are convinced that the invention has novelty and nonobviousness.

(2) In the reference 1 (US 6396081 B1), as shown in Fig. 2 and Fig. 3, a light-emitting diode element 29 is mounted all over a substrate 22 having a through hole 25 filled with a transparent resin portion 27, via a transparent adhesive 37, and the light-emitting diode element 29 is sealed by sealing resin 38. That is to say, in the reference 1, the light-emitting diode element 29 is not mounted so as to cover the through hole 25 corresponding to a light-transmissive section of the invention, but the through hole 25 is covered by the transparent adhesive 37,

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which indicates that unlike the invention, the light-transmissive section is not covered by an optical element.

In such a constitution, the optical element and the substrate 22 having the through hole 25 formed thereon cannot be directly coupled on each other so that thermal dissipation performance of the element is deteriorated.

(3) In the reference 2 (Japanese Unexamined Patent Publication JP-A 11-261109 (1999)), Fig. 8 shows a constitution having a through hole 310B corresponding to the light-transmissive section of the invention, however, the through hole 310B is covered by a fluorescent material 320 and unlike the invention, the light-transmissive section is not covered by the optical element. In such a constitution, as in the case of the reference 1, the optical element and a mounting board 310 having the through hole 310 formed thereon cannot be directly coupled on each other so that the thermal dissipation performance of the element is deteriorated.

In the reference 2, in a paragraph numbered [0070] is described that resin 740 is mixed with flame-resistant material so that flame resistance is secured, however, the filler of the invention which changes liner expansion coefficient and thermal conductivity, has a different

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objective from that of the flameproof material.

(4) As described above, in the references 1 and 2, the through hole corresponding to the light-transmissive section of the invention is covered by not the optical element, but the transparent resin portion or the fluorescent material, as a consequence whereof, unlike the invention, the thermal dissipation performance of the element does not improve. In this point, the references are different from the invention. Consequently, we are convinced that the invention has novelty and nonobviousness over the reference 1 and 2.

国際調査見解書に対するコメント

(1) 2005年2月15日付発送の国際調査報告書においては、文献1が挙げられ、本発明の請求の範囲1, 4-8, 14-15, 19-20に係る発明は新規性および進歩性を有しないとされている。

また文献2が挙げられ、本発明の請求の範囲1-15, 17-22に係る発明は新規性および進歩性を有しないとされている。

しかしながら本発明は、以下の理由で、新規性および進歩性有するものと確信します。

(2) 文献1 (US 6396081 B1) では、その図2および図3に示されるように、透明樹脂部27で充填された貫通孔25を有する基板22の一面に透光素子29が搭載され、透光素子29が封止樹脂38で封止されている。すなわち、文献1では、透光素子29は、本発明の透光部に相当する貫通孔25を塞ぐように搭載されており、貫通孔25は透明接着剤37によって塞がれており、本発明のように透光素子によって透光部を塞いでいない。このような構成では、透光素子と貫通孔25が形成された基板22とを直接結合できず、素子の放熱性が悪くなる。

(3) 文献2 (特開平11-261109) では、その図8に、本発明の透光部に相当する貫通孔310Bを用いた構成が記載されているが、貫通孔310Bは透光体320によって塞がれており、本発明のように透光素子によって透光部を塞いでいない。このような構成では、文献1と同様、透光素子と貫通孔310Bが形成された実装基盤310とを直接結合できず、素子の放熱性が悪くなる。

文献2では、その段落番号[0070]に、樹脂740に難燃化剤を混入して、難燃性を確保することが記載されているが、本発明のフィラーは線膨張係数、熱伝導率を変化させるものであり、難燃剤とは目的が異なるものである。

(4) 上記のように、文献1および2では、本発明の透光部に相当する貫通孔は透光素子ではなく透明樹脂部または透光体で塞がれ、したがって本発明のように素子の放熱性が向上されることはなく、この点で本発明と異なる。したがって、本発明は文献1および2を越える新規性および進歩性を有していると確信するものである。

以上